

STATUS OF THE CLAIMS

1-64 (Canceled).

65. (Previously presented) A composition comprising a chimeric nucleic acid; wherein said chimeric nucleic acid encodes a polypeptide; wherein said polypeptide comprises a first domain, a second domain, and a third domain; wherein said first domain comprises a retention signal peptide; wherein said retention signal is a Golgi Apparatus or Endoplasmic Reticulum retention signal; wherein said second domain comprises a recognition site; wherein said recognition site is a protease cleavage site; wherein said third domain comprises a reporter molecule.

66. (Previously presented) The composition of Claim 65, wherein said retention signal is a cellular component retention signal.

67. (Canceled)

68. (Previously presented) The composition of Claim 65, wherein said Golgi Apparatus retention signal comprises the sequence motif KDEL (SEQ ID NO: 1).

69. (Previously presented) The composition of Claim 65, wherein said Golgi Apparatus retention signal comprises the sequence motif NEFA (SEQ ID NO: 2).

70. (Previously presented) The composition of Claim 65, wherein said Golgi Apparatus retention signal comprises a retention signal from Golgi glycosyltransferase.

71. (Previously presented) The composition of Claim 70, wherein said Golgi glycosyltransferase comprises a glucosaminyltransferase I (GlcNAcTI), a beta 1,4-galactosyltransferase (GalT) or an alpha 2,6-sialyltransferase (ST).

72. (Canceled)

73. (Currently amended) The composition of Claim 65, wherein said recognition site is positioned between said first domain and said third domain.

74. (Canceled)

75. (Previously presented) The composition of Claim 65, wherein said recognition site comprises two protease cleavage sites.

76. (Previously presented) The composition of Claim 65, wherein said protease cleavage site comprises a secretase cleavage site.

77. (Previously presented) The composition of Claim 76, wherein said secretase cleavage site comprises a beta-secretase cleavage site.

78. (Previously presented) The composition of Claim 77, wherein said beta-secretase cleavage site comprises the sequence motif SEVKMDAELF (SEQ ID NO: 3).

79. (Previously presented) The composition of Claim 77, wherein said beta-secretase cleavage site comprises the sequence motif SEVNLD AEF (SEQ ID NO: 4).

80. (Previously presented) The composition of Claim 76, wherein said secretase cleavage site comprises a γ -secretase cleavage site.

81. (Previously presented) The composition of Claim 65, wherein said reporter molecule comprises an enzyme.

82. (Previously presented) The composition of Claim 81, wherein said enzyme comprises an alkaline phosphatase.

83. (Previously presented) The composition of Claim 65, wherein said reporter molecule comprises a fluorophore.

84. (Previously presented) The composition of Claim 83, wherein said fluorophore comprises a green fluorescent protein (GFP).

85. (Previously presented) The composition of Claim 84, wherein said reporter molecule comprises a bioluminescent or a chemiluminescent polypeptide.

86. (Previously presented) The composition of Claim 85, wherein said chemiluminescent polypeptide comprises luciferase.

87. (Previously presented) The composition of Claim 85, wherein said bioluminescent or chemiluminescent polypeptide comprises an aequorin, an obelin, a mnemiopsin or a berovin.

88. (Previously presented) The composition of Claim 65 further comprising a promoter; wherein said chimeric nucleic acid is operably linked to said promoter.

89. (Previously presented) The composition of Claim 88, wherein said promoter is a constitutive promoter.

90. (Previously presented) The composition of Claim 88, wherein said promoter is an inducible promoter.

91. (Previously presented) The composition of Claim 65, wherein said composition is contained within an expression vector.

92. (Previously presented) The composition of Claim 65, wherein said composition is operably linked within an expression cassette.

93. (Previously presented) The composition of Claim 65, wherein said composition is transfected in a transformed host cell.

94. (Previously presented) The composition of Claim 93, wherein said transformed host cell is selected from the group consisting of a bacterial cell, a mammalian cell, a yeast cell, an insect cell, and a plant cell.

95. (Previously presented) A kit comprising the composition of Claim 65, and instructions for use.

96. (Previously presented) The kit of Claim 95, further comprising a substrate for said bioluminescent polypeptide, said chemiluminescent polypeptide, or said alkaline phosphatase.